

## YORK UNIVERSITY FACULTY OF HEALTH COURSE OUTLINE 2017 – 2018

Course: PSYCH. 2020 6.0F - Statistical Methods I and II

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Lecture: Tuesdays 8:30 - 10:30 in Rm. Founders College 203

Tutorials: Thursdays 8:30 - 10:30 in Rm. Founders College 203

Text: Hurlburt, R. T. (2012). Comprehending Behavioral Statistics. (6<sup>th</sup> Edition) – **DON'T GET THE 5th EDITION!** – Dubuque, Indiana: Kendall Hunt.

**Prerequisite or Co-requisite:** PSYCH. 1010 6.0 (with a minimum grade of C if Prerequisite)

- HH/PSYC 1010 6.00 (Introduction to Psychology), with a minimum grade of C when used as a prerequisite.

### **Course Credit Exclusions**

Please refer to [York Courses Website](#) for a listing of any course credit exclusions.

**Course website:** [Moodle](#)

**Course Description:** Welcome to the most fun course you will ever take! This course is designed to provide the student with the statistical skills necessary to analyse and understand the data from psychological research. Topics covered will include basic concepts of measurement, measures of central tendency, variability, and relationship. As well, selected inferential statistics will be covered (e.g. tests on correlations and mean differences). You should have a reasonably good working knowledge of high school algebra, but there will be NO calculus or matrix algebra in this course.

**Tutorials:** Students will be required to attend a weekly tutorial. The tutorial's purpose is to review important topics discussed in the lecture and text, occasionally introduce new material, conduct review sessions for upcoming tests, take up assignments and tests, and provide an opportunity for students to ask questions.

### **MOODLE: IMPORTANT NOTE:**

Make sure you know how to use York University's Moodle system, because it is an amazing resource. and because we will be posting a number of important announcements and documents on Moodle. You will be responsible for everything posted on Moodle for this course, so do check it out.

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**Office Hours:** The learning of statistics is an additive process. That is to say, concepts introduced in the course will continually be reappearing, expanded upon, and related to new material. For this reason, it is critical that students obtain a clear understanding of the topics as they are presented in the course. Do NOT get behind! If you are having difficulty grasping any of the concepts discussed in the course, you are strongly advised to drop by the T.A.'s office during her/his office hours.

**Grading:** The learning of statistics tends to be facilitated by (a) frequent testing (both for diagnostic purposes and to increase frequency of studying) and (b) practising the material. Therefore, 80% of the final grade will be determined by four tests (worth 20% each). As well, there will be 4 practice assignments during each term (due dates TBA), totalling 20% of the final grade. While these practice assignments are not worth a large proportion of the final grade, they are VERY IMPORTANT. They are excellent for diagnosing problems early in the course (before you get too far behind), and the practice they provide can mean the difference between a good and poor grade. **Note:** It will be necessary to do the assignments in groups of 4 people (to facilitate learning). Therefore, find 3 other people to work with and let us know who they are (SOON). Each group will hand in ONE group assignment, and all of the group will receive the same grade. **Note:** As soon as your groups are formed make a list of everyone's name, email address, and phone number, and hand it in to the T.A. (You should also circulate this list amongst your group members.)

### Program Learning Outcomes

Upon completion of this course, students should be able to:

1. Compute descriptive statistics and inferential statistics.
2. Interpret and report the results of descriptive statistics and inferential statistics.
3. Distinguish between the role of descriptive statistics and inferential statistics.
4. Compute inferential statistics for univariate linear models (ANOVA, regression).
5. Interpret and report the results of inferential statistics for univariate linear models.
6. Recognize the limits of inferential statistics.

### Topics Covered

- Defining Key Statistical Terms
- Frequency Distributions
- Central Tendency
- Variability
- z-Scores/Normal Distribution
- Probability
- Sampling Distribution
- Confidence Intervals
- Power
- Effect Size
- Hypothesis Testing

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- Correlation  $\chi^2$  (Chi-Square)
- One-sample and Two independent samples t-test
- Paired samples t-test
- Review of basic statistical concepts
- One-way Independent Groups ANOVA (with multiple comparisons)
- Two-way Independent Groups ANOVA (with interaction)
- One-way Repeated Measures ANOVA
- Correlation
- Simple Regression
- Multiple Regression

### **Grading as per Senate Policy**

The grading scheme for the course conforms to the 9-point grading system used in undergraduate programs at York (e.g., A+ = 9, A = 8, B+ = 7, C+ = 5, etc.). Assignments and tests\* will bear either a letter grade designation or a corresponding number grade (e.g. A+ = 90 to 100, A = 80 to 90, B+ = 75 to 79, etc.)

(For a full description of York grading system see the York University Undergraduate Calendar - [Grading Scheme for 2017-18](#))

### **Missed Tests and Late Assignments**

There have been increasing problems with missed tests in the past (particularly with respect to the misuse of the right to write makeup tests), so please read this section carefully. **Normally**, a student who misses a test or hands in an assignment late will be scored 0 unless the student produces valid medical documentation that she or he was medically unable to write the test. IT IS IMPORTANT TO NOTE THAT THE ATTENDING PHYSICIAN MUST FILL OUT THE YORK UNIVERSITY “**ATTENDING PHYSICIAN’S STATEMENT**” AND BE WILLING TO STATE THAT THE STUDENT WAS MEDICALLY UNABLE TO WRITE THE TEST. THE STUDENT MUST PRODUCE THE STATEMENT WITHIN 48 HOURS OF THE MISSED TEST AND TELEPHONE US AHEAD OF TIME IF HE/SHE KNOWS IN ADVANCE THAT THEY WILL BE TOO SICK TO WRITE. A simple doctor’s note indicating that the student was in to see the doctor is not acceptable, and physician’s statements which are produced weeks later will not be accepted. All Physicians’ Statements will be followed up and verified for authenticity.

Although we normally only accept medical reasons for missing tests, we do realize that there are sometimes disasters or other events beyond a student’s control that force them to miss a test, so if this happens to you, please do speak to us. But do it **ahead** of time, OK?

**PLEASE NOTE: ALL MAKEUP TESTS WILL BE SCHEDULED IN ONE BIG MAKEUP SESSION AT THE END OF THE COURSE (IN APRIL).**

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### Important New Information Regarding Missed Tests

For any missed tests or late assignments, students **MUST** complete the following online form which will be received and reviewed in the Psychology undergraduate office.

[HH PSYC: Missed Tests/Exams Form](#). Failure to complete the form within 48 hours of the original deadline will result in a grade of zero for the test/assignment.

### Add/Drop Deadlines

For a list of all important dates please refer to: [Fall/Winter 2017-18 - Important Dates](#)

	<b>FALL (F)</b>	<b>YEAR (Y)</b>	<b>WINTER (W)</b>
Last date to add a course <b>without permission</b> of instructor (also see Financial Deadlines)	Sept. 20	Sept. 20	Jan. 17
Last date to add a course <b>with permission</b> of instructor (also see Financial Deadlines)	Oct. 4	Oct. 18	Jan. 31
Drop deadline: Last date to drop a course without receiving a grade (also see Financial Deadlines)	Nov. 10	Feb. 9	March 9
Course Withdrawal Period (withdraw from a course and receive a grade of "W" on transcript – see note below)	Nov. 11 - Dec. 4	Feb. 10 - Apr. 6	March 10 - Apr. 6

**\*Note:** *You may withdraw from a course using the registration and enrolment system after the drop deadline until the last day of class for the term associated with the course. When you withdraw from a course, the course remains on your transcript without a grade and is notated as "W". The withdrawal will not affect your grade point average or count towards the credits required for your degree.*

### Electronic Device Policy

You may take notes on your laptop in class, but there will be **NO** recording of lectures, nor pictures or videos of any kind.

### Academic Integrity for Students

York University takes academic integrity very seriously; please familiarize yourself with [Information about the Senate Policy on Academic Honesty](#).

It is recommended that you review Academic Integrity by completing the [Academic Integrity Tutorial](#) and [Academic Honesty Quiz](#).

### Test Banks

The offering for sale of, buying of, and attempting to sell or buy test banks (banks of test questions and/or answers), or any course specific test questions/answers is not permitted in the Faculty of Health. Any student found to be doing this may be considered to have breached the Senate Policy on Academic Honesty. In particular, buying and attempting to sell banks of test questions and/or answers may be considered as "Cheating in an attempt to gain an improper advantage in an academic evaluation" (article 2.1.1 from the Senate

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Policy) and/or “encouraging, enabling or causing others” (article 2.1.10 from the Senate Policy) to cheat.

### **Electronic Devices During a Test/Examination**

Electronic mobile devices of any kind are not allowed during a test or examination. Students are required to turn off and secure any electronic mobile device in their bag which is to be placed under the chair while a test/exam is in progress. Any student observed with an electronic device during a test/exam may be reported to the Undergraduate Office for a potential breach of Academic Honesty.

### **Academic Accommodation for Students with Disabilities**

While all individuals are expected to satisfy the requirements of their program of study and to aspire to do so at a level of excellence, the university recognizes that persons with disabilities may require reasonable accommodation to enable them to do so. The [York University Accessibility Hub](#) is your online stop for accessibility on campus. The [Accessibility Hub](#) provides tools, assistance and resources. Policy Statement.

**Policy:** York University shall make reasonable and appropriate accommodations and adaptations in order to promote the ability of students with disabilities to fulfill the academic requirements of their programs.

The nature and extent of accommodations shall be consistent with and supportive of the integrity of the curriculum and of the academic standards of programs or courses. Provided that students have given sufficient notice about their accommodation needs, instructors shall take reasonable steps to accommodate these needs in a manner consistent with the guidelines established hereunder.

For Further Information please refer to: [York University academic accommodation for students with disabilities policy](#).

### **Course Materials Copyright Information**

These course materials are designed for use as part of the PSYCH 2020 course at York University and are the property of the instructor unless otherwise stated. Third party copyrighted materials (such as book chapters, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law.

Copying this material for distribution (e.g. uploading material to a commercial third-party website) may lead to a violation of Copyright law. [Intellectual Property Rights Statement](#).

### **Lecture Schedule and Topics to be Covered**

**Preamble:** Since the textbook is generally a thorough, excellent one, the lecture material will follow the textbook closely. However, some additional topics not mentioned in the text will be discussed in class. It is strongly recommended that you read the material in the text before it is covered in class. (Reading ahead of time is the best way to ensure success in this course.)

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**Tentative Lecture & Test Schedule:**

NOTE: EXCEPT FOR TESTS, THE DATES BELOW ARE **APPROXIMATE** AND MAY CHANGE

<u>Week of:</u>	<u>Topics:</u>	<u>Chapters to Read:</u>
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Sept. 7	Introduction, Math Concepts Frequency Distributions	1 & 2
Sept. 11-15	Frequency Distributions	3
Sept. 18-22	Measures of Central Tendency	4
Sept. 25-29	Measures of Variation	5
Oct. 2-6	Using Frequency Distributions	6
Oct. 10	<b><u>Test #1</u></b> (Covering Chapters 1 through 6)	
Oct. 16-20	Samples and Sampling Distributions	7
Oct. 24	Parameter Estimation	8
Oct. 26	<b>NO TUTORIAL</b> (Fall Reading Day)	
Oct. 30 - Nov. 3	Evaluating Hypotheses	9
Nov. 6-10	Evaluating Hypotheses, Single-Sample Mean Inferences	10
Nov. 13-17	Single-Sample Mean Inferences	10
Nov. 20-24	Review	
Nov. 28	<b><u>Test #2</u></b> (Covering Chapters 7 through 10)	
<b><u>WINTER TERM:</u></b>		
Jan. 4	Test #2 Review	
Jan. 8-12	Inferences about 2 Independent Means	11
Jan. 15-19	Inferences about 2 Dependent Means	12
Jan. 22-26	Statistical Power	13 (but SKIP 13.3)
Jan. 29 – Feb 2	One-way Analysis of Variance (ANOVA)	14
Feb. 5-9	ANOVA, Multiple Comparisons (Post Hoc Tests only)	14, 15 (Sect.15.1 only)
Feb. 12-16	Multiple Comparisons	15.1, part of 15.2

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Feb. 19-23

**READING WEEK – NO CLASSES**

Feb. 27      **Test #3** (Covering Chapters 11 through Section 15.1 of Chapter 15)

Mar. 5-9      Two-way Analysis of Variance      15 (but SKIP 15.3)

Mar. 12-16    Two-way Analysis of Variance, Correlation      15, 16

Mar. 19-23    Correlation, Linear Regression      16, 17

Mar. 26-30    Linear Regression      17

Apr. 3      **Test #4**      (Covering Chapters 15 through 17 and Lecture Notes)

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Good luck to you all, and again, welcome to the course!